

How to engage customers in co-creation: customers' motivations for collaborative innovation

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The term 'customer engagement' has been increasingly used in academic marketing literature. Empowered by the rise of the internet, customers are no longer a 'passive audience' but 'active co-producers' and engage in behaviours that strengthen their relationship with the product, company or brand, such as collaborating to co-create value through innovation. However, few studies exist on collaborative innovation and how to engage customers in co-creation, namely in specific virtual environments. Drawing on insights from product innovation and virtual communities, our study seeks to understand why customers participate voluntarily and freely in co-creation online activities, by testing a conceptual model which considers an integrated set of motivations for members to engage in collaborative innovation. On a managerial level, our study intends to provide valuable insights to firms on how to create an experience to engage consumers in co-creation in virtual communities.

Keywords: co-creation; collaborative innovation; customer engagement; motivations

Introduction

Nowadays, empowered by the web compound and the associated information technologies, consumers want to play a more active role in the consumption process and in exchanges with companies Hoyer, Chandy, Dorotic, Krafft, & Singh, (2010). Customers are no longer a 'passive audience', but 'active co-producers' Prahalad & Ramaswamy, (2004). They want to co-create value to build their identities, express themselves creatively, socialize with other consumers and enjoy unique and memorable experiences (Gambetti & Graffigna, 2010). Increasingly, the customer-centric logic emphasizes the importance of analysing customers' active participation and engagement in the creation of marketing value Kumar et al., (2010).

One important outcome of consumer empowerment is an increased desire to engage in the process of value co-creation. Customers engage in a number of behaviours that strengthen their relationship with the product, company or brand which go beyond traditional customer loyalty measures Gummerus, Liljander, Weman, & Pihlström, (2012), such as co-creation. The term 'customer engagement' (CE) has been increasingly used in academic marketing literature. The relationship between engagement and co-creation of value has been conceptually established, positing co-creation as one of the manifestations of engagement Bijmolt et al., (2010) and thus considering that engagement encompasses customer co-creation Van Doorn et al., (2010). Co-creation and CE constructs are considered as concepts that explain joint configuration of value and

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non-transactional behaviour Jaakkola & Alexander, (2014). Namely, collaboration with customers to create value through product development relates to CE and has become a strategic imperative for firms Verleye, (2015). However, despite calls for a broader framework, the specific motivations of consumer engagement in collaborative innovation are little understood, and more research is required on the needs, wants, preferences of co-creating consumers Casaló, Flavián, & Guinalú, (2010; Hoyer et al., 2010).

Drawing on concepts and insights from the areas of product innovation and virtual communities, this study seeks to understand why customers participate voluntarily and freely in value co-creation online activities, by testing a conceptual model which considers an integrated set of motivations for members' willingness to engage in collaborative innovation. Through a sample of 661 members (including 269 effective participants) of one of the most powerful online collaborative platforms, the free software (FS) case, developed around Android, the new Google's mobile operating system, we conduct an online cross-sectional survey to examine what motivates users to engage and contribute voluntarily to the innovation process. The investigation undertaken to test the conceptual framework is then described. Finally, we conclude the paper by presenting final conclusions, contributions and suggestions for future research.

A co-creation perspective of engagement

Since 2005, the term 'customer engagement' has been increasingly used in the broader academic marketing literature Brodie, Hollebeek, Juric, & Ilic, (2011). Though systematic conceptualizations of engagement in marketing are scarce Vivek, Beatty, & Morgan, (2012), the definition presented by Brodie et al., (2011) can be considered as one of the most comprehensive CE definition in the literature. CE is defined as 'a multidimensional concept comprising cognitive, emotional, and/or behavioural dimensions' (p. 260), characterized by a specific intensity level, that plays a central role in the process of relational exchange. Engagement occurs by virtue of an individual's interactive experience with a 'focal or engagement object' Hollebeek, (2011b), which may include brands, offerings, organizations and organizational activities beyond purchase. The level of CE in a particular interactive experience and/or joint activity with a focal object may generate a level of perceived value created in the customer's mind, or co-created value (CCV). Particular CCV levels may exert a positive effect on CE in subsequent interactions, and in turn, on subsequent CCV levels, resulting in an iterative association between CE and CCV Hollebeek, (2011c). The reciprocal nature of CE is, thus, conceptually aligned with the co-creation and the 'joint value creation' (Grönroos, 2011) concepts. Brodie et al. (2011) further highlight the role of interactive customer experience and CCV as the underlying conceptual foundations of CE. Also, Lusch and Vargo (2006) suggest that particular interactive, co-creative customer experiences may be interpreted as the act of 'engaging'. Thus, CE also refers to customer co-creation Brodie, Ilic, Juric, & Hollebeek, (2013). Galvagno and Dalli (2014) define co-creation as 'the joint, concurrent, peer-like process of producing new value, both materially and symbolically' (p. 644). Further, Frow, Payne, and Storbacka (2011) define value co-creation as 'an interactive process involving at least two willing resource integrating actors which are engaged in specific forms of mutually beneficial collaboration, resulting in value creation for those actors' (p. 1).

Co-creation is considered as an important manifestation of customer engagement behaviours (CEB), defined as 'customers' behavioural manifestations toward a brand or

firm, beyond purchase, resulting from motivational drivers' Van Doorn et al., (2010, p. 254). According to Van Doorn et al., (2010), co-creation occurs when the customer participates through spontaneous, discretionary behaviours beyond the selection of predetermined options. Also, CEB includes voluntary and extra-role behaviours and, beyond that, views customers exogenously, driven by their own unique purposes and intentions, instead of those originated by the firm (Jaakkola & Alexander, 2014). This definition differentiates co-creation as a CEB from other concepts, such as co-production or co-design, often seen by many authors as overlapping Galvagno & Dalli, (2014; McColl-Kennedy, Vargo, Dagger, Sweeney, & van Kasteren, 2012). Co-production is associated with customers' involvement in producing the core offering for themselves Vargo & Lusch, (2008). In online settings, co-production has been defined as the personalization of design features, or co-design Piller, Schubert, Koch, & Mösslein, (2005). Since co-production is an in-built element of the transaction, originated by the firm and often limited to the duration of the service encounter, it's not a voluntary, extra-role behaviour with a broader interactive character as CEBs are (Jaakkola & Alexander, 2014).

Thus, co-creation can occur in a variety of contexts (Bolton & Saxena-Iyer, 2009).¹ However, the extant discussion in the literature does not offer a clear view and, depending on the definition of value creation, the co-creation concept involves different meanings. S-D logic treats value creation as co-creation, and considers that both provider and customer are always co-creators of value (Lusch & Vargo, 2006). Another perspective (Grönroos & Voima, 2013) considers that value creation is an ongoing process and that co-creation occurs *only* in a joint sphere when two or more parties interact. Accordingly, value co-creation can be extended from a dyadic perspective to the actor-to-actor (Lusch & Nambisan, 2015) or the network-to-network (McColl-Kennedy et al., 2012) contexts, such as it occurs in collaborative innovation. Unlike co-production, collaborative innovation is a relatively optional, spontaneous, extra-role, voluntary and effortful engagement of customers in the co-creation of value (Galvagno & Dalli, 2014), and thus customer involvement in product development is a CEB (Jaakkola & Alexander, 2014).

Understanding value creation and co-creation emphasizes the need to further study customers' motivations to engage in the process. As the roles of customers and firms become increasingly blurred, encouraging customers to be value co-creators is considered the next frontier in competitive effectiveness (Bendapudi & Leone, 2003; Jaakkola & Alexander, 2014). CE plays a remarkable role on establishing customer motivations to get involved in co-creation activities. Past research indicates that, through CE, customers may extensively contribute resources (e.g. time, skills or knowledge) within their own networks to actors beyond the provider–customer dyad (Schau, Muñiz, & Arnould, 2009), affecting value co-creation. However, as yet, there is little formal research on collaborative innovation (Sawhney, Verona, & Prandelli, 2005) and how to engage customers in co-creation (Bijmolt et al., 2010; Payne, Storbacka, & Frow, 2008), namely in specific virtual environments (DeValck, Van Bruegen, & Wierenga, 2009).

Virtual online communities as co-creation and engagement platforms

As social media provided new possibilities for customers' empowerment and activities, most studies on CE have been developed primarily in online settings (e.g. Brodie et al., 2013; Gummerus et al., 2012; Hollebeek, Glynn, & Brodie, 2014). Nowadays, with

communication technologies and information systems, it is possible to interact with and among consumers (Brodie et al., 2013) and to engage them more broadly, more richly and more speedily (Sawhney et al., 2005). Geographically dispersed individuals with shared interests may gather online, culminating in radically new forms of interactions which did not exist a decade ago (Gummerus et al., 2012), including purchase and non-purchase behaviours.

The virtual world not only connects companies, but also consumers through electronic discussion forums, chat rooms, newsgroups or online communities, resulting from consumer initiatives or from companies as a part of brand strategies (DeValck et al., 2009). Emerging has a major phenomenon (Casaló et al., 2010), online communities allow strengthening consumer relationships and engagement (Algesheimer, Dholakia, & Herrmann, 2005).

According to McAlexander, Schouten, and Koenig (2002), communities tend to be identified on the basis of commonality among their members, creating bonds and turning the community into a powerful engagement platform (Sawhney et al., 2005). Peer-to-peer interactions are considered beneficial to the firm, but also important to create customer value. By sharing personal experiences, influencing others, acquiring cognitive competencies and/or assisting in the development of new products, consumers may influence value-in-exchange and value-in-use (Lusch & Vargo, 2006).

Relational resources have been shown to constitute key drivers of value creation (Füller, Mühlbacher, Matzler, & Jaweck, 2010). Viewed under S-D logic (Lusch & Vargo, 2006), social networks are part of the customer's operant resources, which means the customer can tap into them to co-create value. Through individual and collaborative effort, community members can create and co-create value for themselves, other members, visitors and/or organizations (Brodie et al., 2011), extending CE beyond dyadic interactive experiences (Van Doorn et al., 2010) to a social dimension of the phenomenon (Brodie et al., 2013).

In these virtual communities, users both produce and consume information in a voluntary and democratic manner (Ståhlbröst & Bergvall-Kåreborn, 2011). These customer-to-customer (C2C) interactions are extremely powerful marketing tools. Many customer CEBs, such as disseminating information through word of mouth or participating in brand-related events at virtually no cost, can contribute to firm's financial gains and reputation. Customers may acquire new customers for the firm (Kumar et al., 2010) or influence other customers' perceptions (Brodie et al., 2013). Highly engaged customers can also be a crucial source of knowledge, helping firms in a variety of activities like ideas for design and development of new products, or trial of beta products (Van Doorn et al., 2010). By providing feedback, ideas and information (Kumar et al., 2010), or participating in product design or assembly (Kristensson, Gustafsson, & Archer, 2004), customers help improve the firm's offerings through collaborative innovation, a key process in value co-creation (Zwass, 2010).

Collaborative innovation in virtual communities

While co-creation includes several processes, one of the most important is collaborative innovation, a new paradigm in the field of value creation (Bugshan, 2015) which the Internet has greatly enhanced (Hoyer et al., 2010). The virtual environment increases the speed and the persistence of CE as interaction happens in real-time, with a high frequency, and without geographic boundaries (Quinton & Harridge-March, 2010). Through the Internet, firms can maintain a persistent dialogue with customers and tap

into the social dimension of customer knowledge, shared among groups of customers with shared interests, gaining reach and scope (Sawhney et al., 2005). Collaborative innovation includes engagement, experience and co-creation of value (Lee, Olson, & Trimi, 2012), in a process where new ideas from various sources are applied differently to create new value for all stakeholders, including consumers (Von Hippel, Ozawa, & DeJong, 2011). Collaboration is especially effective for value creation through NPD, process innovation and new business models (Lee et al., 2012).

Mele, Russo-Spena, and Colurcio (2010) discuss innovation as a network issue, whereas innovation should be understood as an open process in which all of network actors (including customers) can mobilize resources and thus become co-innovators in co-creating value for themselves and for others. Co-creating innovation can thus be seen as a dynamic and ongoing interaction process performed by a group of actors who are interrelated in a dense network (Russo-Spena & Mele, 2012). Von Hippel (2007) refers to the particular case of 'horizontal innovation networks' as innovation, development, production, distribution and consumption networks that are distributed horizontally, which exist in the field of FS projects and many others. With the help of technological advances, these 'by and for users' networks increase individual freedom of choice and allow innovations to be freely shared within and beyond the user network.

The networked nature of innovation led to the concept of co-creation according to a collaborative domain, based on the systematic use of the engagement of competencies and experiences of individuals and communities through which mutual value is expanded together. Through an open interaction context, new ideas emerge, and they are selected, developed and launched through collaboration among many actors. The Internet has favoured the growth of such collaborative platforms, facilitating open and user-driven innovation (Bugshan, 2015). These increasingly popular emerging platforms, ranging from online discussion forums to virtual communities, design competitions and online user innovation networks, provide a neutral and low-risk environment (Quinton & Harridge-March, 2010) which holds together diverse actors and enables their engagement in innovation and co-creation (Frow et al., 2015). Some of these platforms are focusing on supporting open-source projects, while others are focused on involving users in developing specific products. Some of these communities are hosted by companies, others by neutral partners facilitating the innovation process, and some are hosted by developers and users (Zwass, 2010).

According to Ståhlbröst and Bergvall-Kåreborn (2011), these innovation platforms can be classified into five generic types: brand communities, beta-test communities, user content communities, innovation intermediary communities and development communities. Brand communities are defined by Muniz and O'Guinn (2001) as a specialized, non-geographically bound community based on a structured set of social relationships among admirers of the brand. Brand communities focus on users input to developing a specific company's product portfolio. Beta-test communities, on the other hand, focus on tests of prototypes: users are invited to test often quite mature prototypes before they are launched. These communities are driven primarily by a company developing its own products. User content communities, like Wikipedia, focus on users contributing with content to innovative solutions. Users aim to create content collaboratively for others to view and use, and are built totally on their voluntary effort. Innovation intermediary communities, such as Innocentive (Nambisan & Baron, 2007), focus on supporting innovation interactions between users and organizations. The contributing users often are given monetary rewards for their efforts. Finally, development

communities focus on users developing products and services on a voluntary and often for-free basis, including mainly open-source communities and other developer communities. In these networks, heterogeneous collaborative teams are formed with the aim to develop or improve open-source software products together (Casaló et al., 2010). In these communities, run by and for the users (Von Hippel, 2007), the concept of peer-to-peer customer collaboration has found its most significant expression (Sawhney et al., 2005). These communities have existed for several years and are increasingly being ported into organizations (Wiertz & deRuyter, 2007; Zwass, 2010).

The term collaborative product innovation is generally conceptualized as a five-stage NPD process, including ideation, concept development, product design, testing and introduction (Füller et al., 2010). Co-creation in NPD allows consumers to take an active and central role in the process (Hoyer et al., 2010). Since successful NPD depends on understanding consumer needs, by involving consumers more actively in the process, new ideas are more likely to be valued by them, thereby increasing the probability of success (Kristensson et al., 2004). The ability to engage customers in innovation opportunities is thus seen as a factor of corporate agility in the marketplace (Zwass, 2010). However, participation is crucial (Casaló et al., 2010). Significant contributions to NPD process can only be expected when people are willing to share their ideas and only relatively few will have the willingness to be fully engaged (Hoyer et al., 2010). A compelling experience is critical in inspiring users to make creative contributions. However, firms may fail to create an experience which motivates participants to engage in virtual co-creation and, thus, bear the risk of evoking little interest in the innovation process (Füller et al., 2010). Identifying the motivating factors is crucial in order to maximize the appeal to potential contributors and to create virtual innovating experience environments (Nambisan & Baron, 2009). In order to do so, companies primarily need to find out what consumers expect from co-creation and how consumers' motivations influence those expectations (Füller, 2010). However, limited research exists on customers' willingness to engage in co-creation activities, namely through virtual communities (Sawhney et al., 2005), and more studies are required on the needs, wants, preferences of co-creating consumers (Hoyer et al., 2010).

How to engage customers in collaborative innovation: motivators in co-creation

Previous research refers to the motivational nature of CE (Van Doorn et al., 2010; Vivek et al., 2012) and discusses why customers engage in non-transactional behaviours, such as freely reveal valuable knowledge and work for free in the co-creation framework. In fact, the propensity of individuals to contribute is the bedrock of co-creation (Zwass, 2010). The willingness to engage in co-creation requires a strong degree of product involvement (Bendapudi & Leone, 2003). Customers will not only need to use their knowledge, sharing their creative ideas and modifying product concepts, but must also be willing to invest significant amounts of their time, which is a scarce and premium resource for most (Etgar, 2008). Co-creation involves monetary and non-monetary costs, and individuals compare these costs to benefits of engaging in co-creation activities (Hoyer et al., 2010), engaging voluntarily only if they consider it rewarding (Füller, 2010). Customers' motivation to engage relates to their goals, resources and expectation of value outcomes (Vivek et al., 2012) or perceived CCV (Hollebeek, 2011a). This includes a plethora of motivations beyond pecuniary ones (Zwass, 2010), and social, technical and psychological factors, all play a role (Füller, Matzler, & Hoppe, 2008).

One common approach when it comes to motivation is to make a distinction between intrinsic and extrinsic motivation (Vivek et al., 2012). Intrinsic motivation refers to the motivation to engage in an activity primarily for its own sake, without obvious external incentives. In contrast, extrinsic motivation is activated by the intention of obtaining a desired outcome or avoiding an undesired one, and is associated with external incentives, such as monetary compensation, or recognition by others, separated from the activity itself (Hars & Ou, 2002). Both these motivational factors might be of importance to the user's decision to engage in innovation activities, and according to Füller (2010), most users are motivated by a combination of intrinsic (fun and altruism), internalized extrinsic motives (learning, reputation) and entirely extrinsic motives (payment, career prospects).

In fact, certain co-creation drivers may originate from its intrinsic value (Jaakkola & Alexander, 2014). From a consumer point of view, CEBs may be motivated by benefits from the behaviour itself (Gummerus et al., 2012). Customers' interaction experience can itself be a source of value and may form the foundation for their continued participation in value co-creation. Nambisan and Baron (2007) reported that customer participation in product support communities is motivated primarily by a belief in the benefit of engaging in such activities. Similar results were also found by Mathwick, Wiertz, and deRuyter (2008) and Wiertz and deRuyter (2007) in P2P contexts, where members act predominantly out of commitment to the community with a sense of voluntarism and reciprocity. Empirical studies conducted in online brand communities conclude that this results from consumer's intrinsic motivation to interact and cooperate (Wirtz, Ramaseshan, van deKlundert, Canli, & Kandampully, 2013), purely from a sense of altruism. Norms of reciprocity accompany intrinsically motivated engagement behaviours (Dholakia, Bagozzi, & Pearo, 2004). Community members are interested in helping other members, keen to participate in joint activities, to act volitionally in ways that the community endorses, and in ways that enhance value for themselves and others (Algesheimer et al., 2005). Also, intrinsic enjoyment is one of the main drivers for engagement in creative activities. Individuals may look for enjoyable experiences and take part in virtual co-creation projects because they consider it to be an intrinsically rewarding and cognitive stimulating activity (Füller, Matzler, Hutter, & Hautz, 2012). Hoyer et al. (2010) refer to psychological reasons for consumers to participate in the co-creation process, including a sense of self-expression and the pure enjoyment of contributing in terms of creativity.

Engaging in co-creation activities may also relate to extrinsic benefits, such as social benefits, enhanced knowledge and economic benefits (Füller, 2006). Social incentives such as reputation within a desired in-group (Casaló et al., 2010), expertise recognition (Hoyer et al., 2010) and strengthening ties with relevant others (Nambisan & Baron, 2009) may foster CE (Dholakia, Blazevic, Wiertz, & Algesheimer, 2009). Individuals often engage in co-creation because they enjoy interacting with like-minded others who they collaborate with and feel attached to, and want to establish social relationships (Füller et al., 2010). Such relationships provide a range of benefits, including a sense of belonging or social identity (Nambisan & Baron, 2009). Also, the CE process is largely initiated by consumers' need for information and enhanced knowledge (Brodie et al., 2013). Consumers often participate in the community to seek assistance and help from other members (Mathwick et al., 2008). Others may be motivated by a desire to gain technology knowledge (Hoyer et al., 2010) and important cognitive benefits of information acquisition and learning (Wu, Gerlach, & Young, 2007). Members learn in vicarious and interactive ways from the anecdotes, suggestions and ideas of

other members, and the community becomes a collective memory of individual interactions and cumulative expertise (Dholakia et al., 2009). By its nature, the information exchange allows people to learn about each other as they learn more about the community's focal topics. Such interactions also increase the social benefits members perceive, and in turn enhance their engagement (Wirtz et al., 2013). Finally, co-creating consumers might be motivated by financial rewards, either directly through monetary prizes or indirectly through visibility and intellectual property (Frey, Lüthje, & Haag, 2011). However, many of them choose to free reveal ideas and share effort in the process of co-creation (O'Hern & Rindfleisch, 2010).

Research framework and methodology

Our research focuses on customers' motivations as drivers of engagement in collaborative innovation. According to literature review, we propose the following research framework (Figure 1):

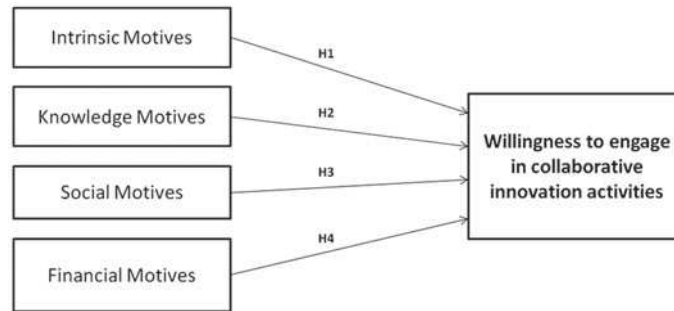


Figure 1. Research framework.

Considering that most users are motivated by a combination of intrinsic and extrinsic reasons, attention is focused on the following hypotheses:

Hypothesis 1 (H1): Intrinsic motivation has a positive impact on the willingness to engage in collaborative innovation activities

Hypothesis 2 (H2): The desire to share and acquire knowledge has a positive impact on the willingness to engage in collaborative innovation activities

Hypothesis 3 (H3): The desire to socialize with peers has a positive impact on the willingness to engage in collaborative innovation activities

Hypothesis 4 (H4): The desire to attain financial rewards has a positive impact on the willingness to engage in collaborative innovation activities

Additionally, customer participation, defined as the degree to which the customer is involved in producing or delivering the service (Bolton & Saxena-Iyer, 2009), engages the customer in an interactive situation, which can produce higher levels of enthusiasm and subsequently greater engagement (Casaló et al., 2010; Vivek et al., 2012). Participation levels in co-creation may vary and an initial motivation to co-create may diminish or intensify following varying participating levels (Bijmolt et al., 2010). For instance, in their study on development projects for Linux, Hertel, Niedner, and Herrmann (2003) point out significant differences in the intensity of the motivations

among the most active and committed contributors, when compared to occasional participants. Thus, we also post that:

Hypothesis 5 (H5): There are significant differences in motivations among consumers who are occasionally engaged in collaborative innovation and consumers who are frequently involved in these projects

One of the most powerful online collaborative platforms, the FS case, developed around Android, the new Google's mobile operating system, was chosen for this study. These 'engagement platforms' (Sawhney et al., 2005) provide a useful avenue to explore the engagement concept (Brodie et al., 2013). Members act not only as producers and developers, but also as consumers and promoters of products and services, often freely distributed in an altruistic way (Casaló et al., 2010). The analysis of this case is especially relevant for our research, since members' engagement is developed thanks to the voluntary interactions among them. Thus, this example of collaborative innovation may result in valuable insights to firms aiming to develop and/or sponsor their own innovation platforms, namely in terms of attracting members to actively engage in co-creation.

Data was collected through a web-based cross-sectional survey using speaking members of several FS virtual communities, which is consistent with research practice in this area (e.g. Bagozzi & Dholakia, 2006; Casaló et al., 2010). The FS communities analysed include some of the most popular FS Android communities in Portugal. The questionnaire comprised 25 questions and was divided into three sections, including (i) user's motivation for engaging in collaborative innovation activities (adapted from Baytiah & Pfaffman, 2010; Frey et al., 2011; Füller, 2006; Wu et al., 2007; Xu, Jones, & Shao, 2009), (ii) willingness to engage in collaborative innovation activities (adapted from Wu et al., 2007; Xu et al., 2009), as well as (iii) user characteristics. Constructs were measured using a seven-point Likert scale and modified to the specific innovation community analysed.

Research findings

From the 661 members' validated questionnaires, 269 belonged to actual participants (regular or occasional) in collaborative innovation projects, and were thus the ones considered in our analysis. The majority of the respondents (93%) were male, between 20 and 35 years (62%), and who concluded high school (44%) or had a bachelor's degree (45%). Results show that 45% of respondents participate regularly in collaborative innovation activities.

Exploratory factor analysis was performed on user's motivations. After excluding some non-significant items, the results strongly support the four-factor structure, with a total variance explained of 63.3%. The scales demonstrated good reliability according to accepted standards. In addition, evidence of the measures' validity is provided by the fact that all factor loadings are significant, and that scales exhibit high levels of internal consistency (Hair, Black, Babin, Anderson, & Tatham, 2006). Benefits considered more important belong to the intrinsic motives dimension, while the least important are financial rewards (Table 1).

Hypotheses H1–H4 aim to determine to what extent willingness to engage in collaborative innovation is explained by user's motivations. Multiple regression analysis considered all motivations significant. Intrinsic motives and knowledge acquisition emerged as the most important determinants of users' willingness to engage in

Table 1. Measurement scales, reliability, validity and dimensionality statistics.

Measures	Mean (SD)	PCA loadings	α (AVE)
<i>Intrinsic motives</i>			.78 (.532)
I am curious	5.71 (1.15)	.687	
I enjoy to keep up with new ideas and innovations	6.19 (1.03)	.755	
I like experiencing new and different products	5.70 (1.32)	.760	
I enjoy experiencing new software/apps/games	6.12 (1.18)	.748	
I like to support innovative products	6.14 (1.09)	.692	
<i>Knowledge motives</i>			.62 (.634)
To improve my skills in software development	4.42 (1.74)	.660	
To improve software/apps that I use or will use in the future	5.55 (1.38)	.789	
To introduce ideas to the developers of these applications	4.48 (2.19)	.803	
<i>Social motives</i>			.76 (.587)
To meet other users who share similar interests	5.91 (1.35)	.776	
To get in touch with developers of these applications	4.36 (1.90)	.787	
Because I believe in the values and norms of FS communities	4.35 (1.89)	.825	
To share ideas about software/apps	5.81 (1.53)	.667	
<i>Financial motives</i>			.71 (.776)
Because I expected a monetary compensation for my participation	3.49 (1.91)	.881	
Because I am interested in the offered rewards (e.g. special offers/prices)	2.14 (1.70)	.881	
<i>Willingness to engage</i>			.81 (.643)
In the future I intend to continue to participate in NPD	5.99 (1.27)	.905	
I plan to make future contributions to these projects	6.00 (1.30)	.916	
I continue believing these projects are important to me	5.55 (1.38)	.520	

collaborative innovation. Social motives and financial rewards were viewed as less important factors (Table 2).

Results show that knowledge acquisition emerged as the most important determinant of engagement in collaborative innovation. Similar results were found by Fuller (2006) and Wu et al. (2007) in their studies on co-design, NPD and open-source software projects. Knowledge benefits tend to be particularly important in technology-based products, given its rich and complex set of features (Nambisan & Baron, 2007). Intrinsic motives, such as curiosity and enjoyment, were also major drivers of CE,

Table 2. H1–H4 testing results: regression analyses between willingness to engage in collaborative innovation and motivations.

	R	R^2	Adjusted R^2	Durbin–Watson	Sig.
Coefficients	B	Std. error	β	T	Sig.
(Constant)	–2.993E–16	.044		.000	1.000
Intrinsic	.421	.044	.421	9.526	.000
Knowledge	.492	.492	.435	11.128	.000
Social	.237	.044	.237	5.364	.000
Financial	–.095	.044	–.095	–2.142	.033

following previous studies (e.g. Füller, 2006; Wu et al., 2007). Regarding social motives, its importance has been highlighted in some studies that relate shared interests as influencing engagement in NPD (e.g. Füller, 2006; Xu et al., 2009). In the specific case of FS communities, social motives also include a close connection with an ideological strand that involves values and norms (Hertel et al., 2003). Conversely, financial rewards, a clearly extrinsic motivation, had the smallest influence on willingness to engage, and this impact is negative, following studies by e.g. Füller (2006) and Frey et al. (2011). This result ascertains members' mainly altruistic motives, as opposed to a more materialistic attitude. Thus, while H1–H3 were supported, H4 was not.

To verify H5, we have analysed differences in motivations of regular and occasional users (Table 3). Results shows that differences are statistically significant ($p < .05$) for all dimensions, except financial motives. By performing unilateral tests, we can see that these motivations are significantly less intensive for members who occasionally engage in FS projects when compared with regular users. In the case of financial rewards, no significant differences were observed. In fact, the contributions of all participants are voluntary and these discretionary behaviours tend to be transversal to all the participants in these projects.

Conclusion

A growing body of literature is focusing on the changing role of consumers, actively engaging in the creation of marketing value, namely in the value co-creation process. However, little research exists on understanding what motivates consumers to engage in these activities, in particular through collaborative innovation. This paper aims at filling this gap, exploring consumer motivations to actively engage in virtual communities and co-create value 'for free', in the context of a FS community.

This study illustrates that the most important motivators for users' participation are knowledge acquisition and intrinsic motivations. Socialization with other users sharing common interests also emerged has a relevant determinant, while being rewarded for their participation was not among the most important in this study. Thus, although most studies focus in citizenship behaviour and reciprocity has main motivators (Nambisan & Baron, 2009) and participants mostly collaborate in a free and voluntary way, our research concludes that engagement in co-creation may not purely be a function of altruism, but also of benefits that participants, reasonably, expect to attain, and perceived CCV within the engagement process. Additionally, our findings suggest that regular contributors recognize benefits attained with co-creation more intensively than occasional users (except for financial rewards) and, thus, will exhibit higher willingness to engage in collaborative innovation. This may generate a reinforcing 'feedback loop'

Table 3. H5 testing results: *t*-Student test for regular and occasional users' motivations.

Motivations	<i>t</i>	Sig. (2-tailed)	Mean difference
Intrinsic	-2.237	.026*	-.2722
Knowledge	-2.870	.004*	-.3706
Social	-3.071	.002*	-.3471
Financial	.851	.396	.1043

* $p < .05$.

effect (Brodie et al., 2011): users more willing to engage will participate more and this, in turn, may generate higher engagement.

Our study contributes to a better understanding of how to engage customers in co-creation through collaborative innovation, namely in specific virtual environments. In contrast to outcomes of co-creation in virtual communities, its drivers have received comparatively less attention and empirical studies are still lacking (Hoyer et al., 2010). Also, though most of the existing studies on CE focus online brand communities, our research studies a different type of engagement context, namely a FS platform, and specific C2C interactions within, responding to calls for a broader framework analysis (Brodie et al., 2011; Hoyer et al., 2010). These so-called ‘engagement platforms’ (Sawhney et al., 2005), and FS communities in particular, offer researchers a fertile domain to study CE and co-creation processes (Casaló et al., 2010).

Moreover, traditional studies of collaborative innovation that do exist have largely focused on the outcome of the innovation process and adopted an economic perspective to explain engagement in value creation (Nambisan & Baron, 2007). However, to fully understand engagement in co-creation, the focus should be on the actual interactive experience and on the benefits customers derive from it. Furthermore, most studies on this area have largely been limited to conceptual and qualitative research (Nambisan & Baron, 2009), while our research surveys a large sample of consumers, leading to more generalizable findings. Finally, the relevant literature in co-creation is mostly concentrated on B2B settings (Hoyer et al., 2010) and is usually represented as a vertical process (Bugshan, 2015). However, attention also needs to be given to the dyadic and/or networked aspects of engagement within specific C2C interactions. Horizontal co-creation and innovation networks should also be considered and this research adds to the small corpus of studies on this area (e.g. Dholakia et al., 2009; Mathwick et al., 2008).

On a managerial level, the current study provides useful actionable guidance to innovation program managers on how to create an experience which motivates participants to engage in co-creation in virtual communities. Firms need to learn about their customers’ wants and needs outside of normal exchange processes. By enhancing the motivators previously mentioned, firms can stimulate consumers’ co-creation. Since participants derive pleasure from the experience itself, firms should create an enjoyable environment, displaying exclusive novelties and stimulating users’ curiosity, in order to attract intrinsically motivated users. Also, providing an environment that stimulates learning is of crucial importance. Since online communities tend to be perceived by consumers as non-commercially driven (Brodie et al., 2011), knowledge sharing, educating and enabling consumers to co-develop become important tasks for marketers. By developing processes to support specific customer interactions (e.g. promoting communication among members, asking for suggestions, providing guidance to other users, organizing meetings), proactive firms can also manage CEBs. Finally, many organizations are enriching their relationships in online communities to generate new ideas for innovation. Firms can themselves get engaged with customers by establishing and contributing to customer communities and ‘engage in engaging’ (Brodie et al., 2013).

We acknowledge that our study is not without limitations. A FS platform, developed around Android, has been researched, and although the concepts presumably apply in general to other communities, the findings require further research, before general conclusions can be drawn. Also, data were collected in the context of a technology-based product and, as such, generalizations of the findings to other contexts should be performed with care. Our sample represents only Portuguese-speaking members of FS communities. A wider sample representing different nationalities and

cultures would also provide a more general understanding of what motivates consumer to co-create value in virtual communities. Further, a mixed-methods approach, potentially with deductive and inductive elements could, arguably, not only capture richer data, but also lead to a stronger contribution. Finally, our study only focuses on motivators of actual participants and did not consider the remaining 392 non-participants. It would also be interesting to investigate possible deterrents and reasons why some innovation community members never engaged in co-creation. This would significantly contribute to existing literature and would help organizations understand their customers better.

Disclosure statement

No potential conflict of interest was reported by the authors.

Note

1. Please see Frow, Nenonen, Payne, and Storbacka (2015), Frow et al. (2011), or O'Hern and Rindfleisch (2010) for a detailed discussion of the different contexts of co-creation.

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